Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-34 (Canceled).

35. (New) An isolated α-2,3-sialyltransferase polypeptide, wherein the α-2,3-sialyltransferase polypeptide catalyzes the transfer of a sialic acid from a donor substrate to an acceptor sugar,

and wherein the α-2,3-sialyltransferase polypeptide comprises an amino acid sequence with at least 90% identity to residues 1-328 of SEQ ID NO:2.

36. (New) The α-2,3-sialyltransferase polypeptide of claim 35, wherein the α-2,3-sialyltransferase polypeptide comprises an amino acid sequence with at least 95% identity to residues 1-328 of SEQ ID NO:2.

37. (New) The α-2,3-sialyltransferase polypeptide of claim 35, wherein the α-2,3-sialyltransferase polypeptide comprises an amino acid sequence with at least 90% identity to residues 1-420 of SEQ ID NO:2.

38. (New) The α-2,3-sialyltransferase polypeptide of claim 37, wherein the α-2,3-sialyltransferase polypeptide comprises an amino acid sequence with at least 95% identity to residues 1-420 of SEQ ID NO:2.

39. (New) The α-2,3-sialyltransferase polypeptide of claim 35, wherein the α-2,3-sialyltransferase polypeptide further comprises an amino acid tag.

40. (New) The α-2,3-sialyltransferase polypeptide of claim 39, wherein the amino acid tag is a member selected from the group consisting of polyhistidine, maltose binding protein, myc, V-5, and FLAG.

41. (New) A method of adding a sialic acid residue to an acceptor molecule comprising a terminal galactose residue, the method comprising contacting the acceptor molecule with an activated sialic acid molecule and an α-2,3-sialyltransferase polypeptide of claim 35.

42. (New) The method of claim 41, wherein the terminal galactose residue is linked through a linkage to a second residue in the acceptor molecule.

43. (New) The method of claim 42, wherein the linkage is a β1,4 linkage.

44. (New) The method of claim 43, wherein the second residue is a Glc or a GlcNAc.

45. (New) The method of claim 42, wherein the linkage is a β1,3 linkage.

46. (New) The method of claim 45, wherein the second residue is a GlcNAc or a GalNAc.

47. (New) The method of claim 41, wherein the activated sialic acid is CMP-Neu5Ac.

48. (New) The method of claim 41, comprising contacting the acceptor molecule with an activated sialic acid molecule and an α-2,3-sialyltransferase polypeptide of claim 37.

49. (New) The method of claim 41, wherein the α-2,3-sialyltransferase polypeptide further comprises an amino acid tag.

50. (New) The method of claim 49, wherein the amino acid tag is a member selected from the group consisting of polyhistidine, maltose binding protein, myc, V-5, and FLAG.